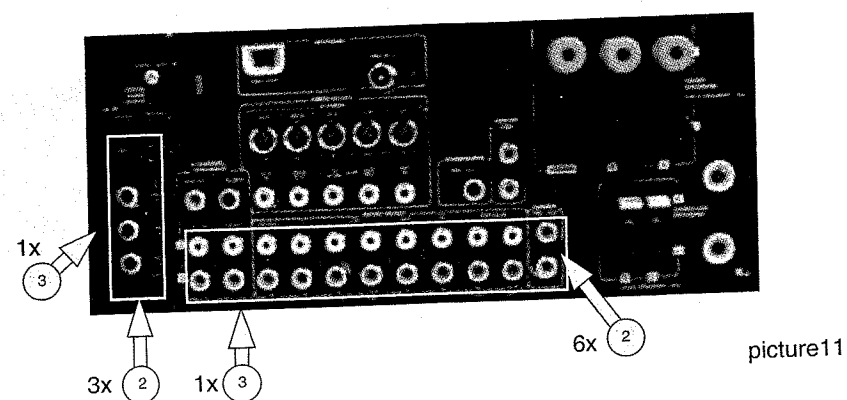


## DISMANTLING HINTS

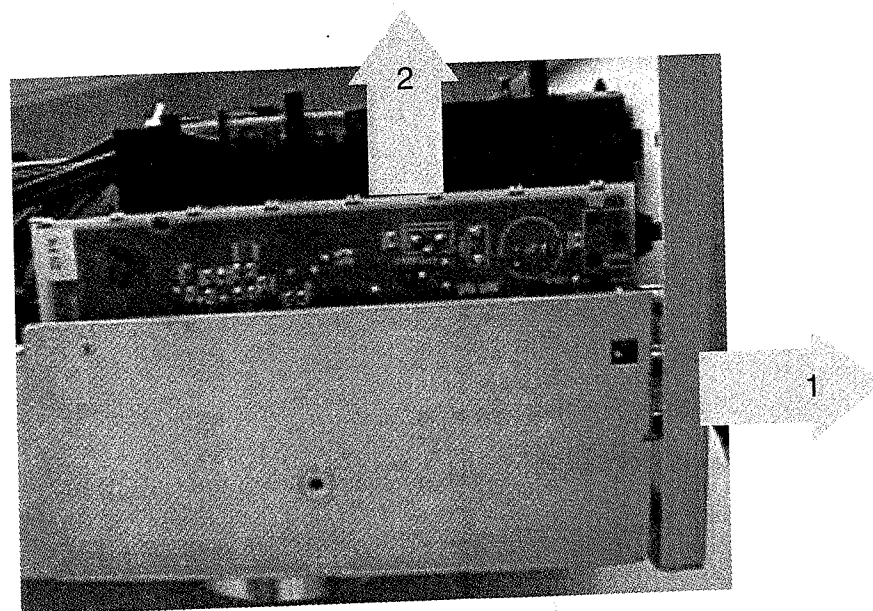
## Dismantling of MDM module

- 1) Remove all the screws mentioned in the arial . See picture 11



picture11

- 2) Remove backplate a little backwards. See arrow 1 (picture 12)  
3) Pull module out the set as shown in picture 12



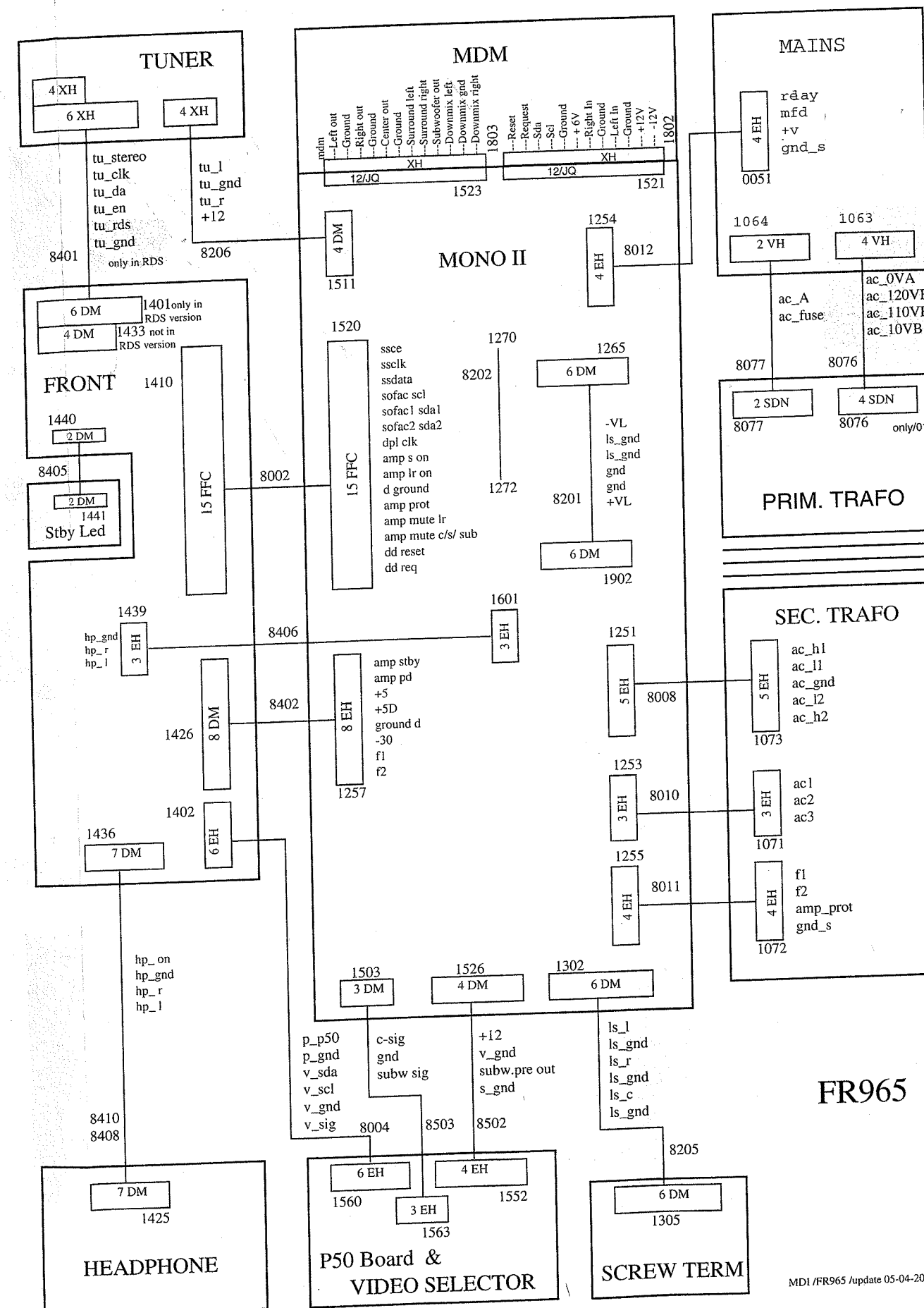
picture12

## Legend

- ① = Torx M3x6mm ( screw with big head )  
② = Torx 3x10mm  
③ = Torx M3x6mm

## WIRING DIAGRAM

3-3

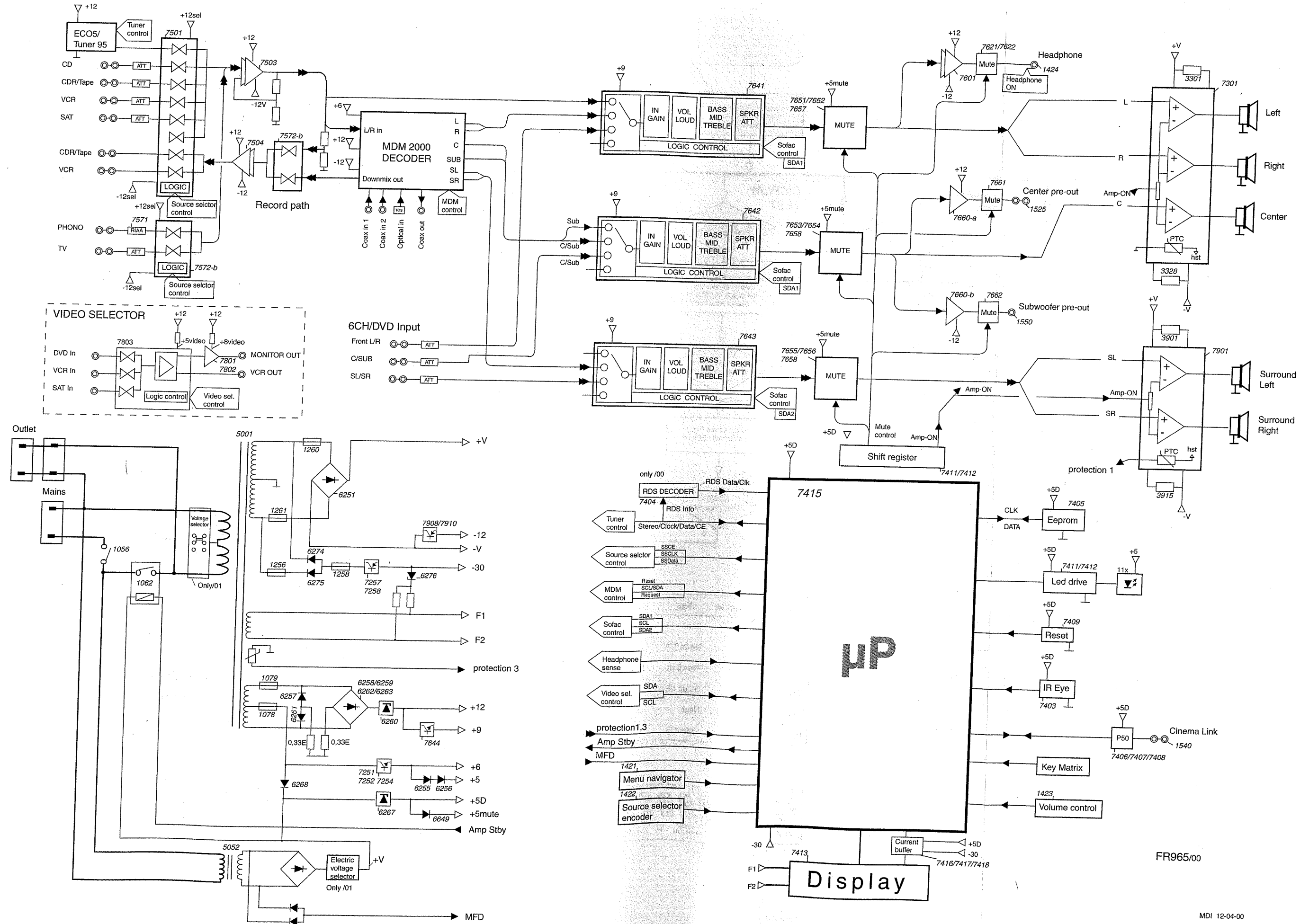


FR965

# BLOCKDIAGRAM

4-1

4-1

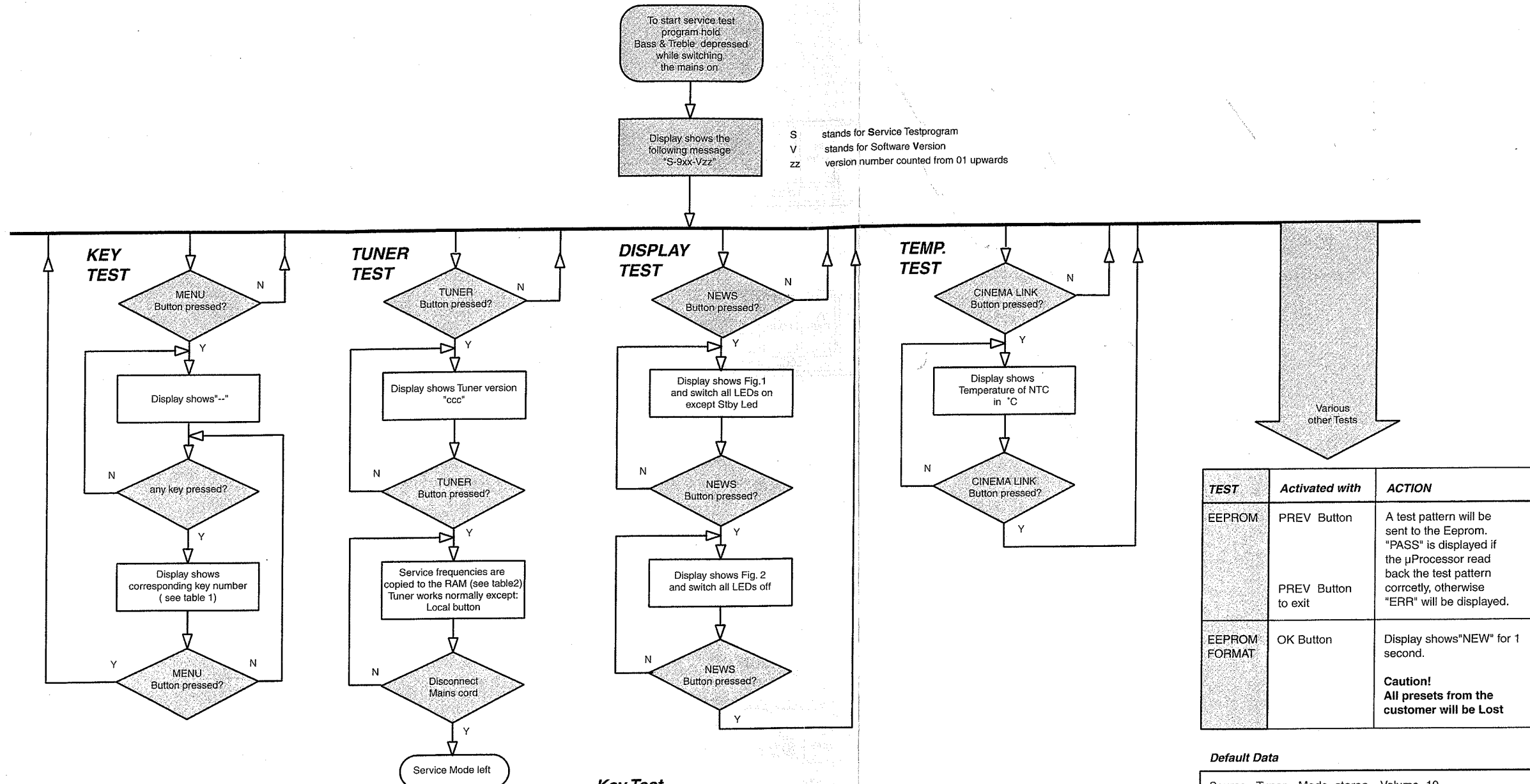


FR965/00

MDI 12-04-00

PCS 105 764

## SERVICE TEST PROGRAM



Tuner Test

Display info Version	Europe "EUR" /00	East Eur. 3-band "EEL" /14	East Eur. 2-band "EEU" /14	USA "USA" /17	Oversea "OSE" /01
Preset 1	87.5MHz	65.81MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	74MHz	74MHz	530kHz	531kHz
4	1602kHz	87.5MHz	87.5MHz	1700kHz	1602kHz
5	558kHz	531kHz	531kHz	560kHz	558kHz
6	1494kHz	1602kHz	1602kHz	1500kHz	1494kHz
7	153kHz	558kHz	558kHz	98MHz	---
8	279kHz	1494kHz	1494kHz	---	---
9	198kHz	153kHz	98MHz	---	---
10	98MHz	279kHz	70.01MHz	---	---
11	---	198kHz	---	---	98MHz

Table 2

This table is valid for all types of tuners.  
Customer presets will not be changed after this Tuner test.  
If a station is tuned then the display flag "OK" will be ON otherwise it will be OFF.  
If the tuned frequency is carrying RDS information, the display flag "RDS" will be ON.  
Oversea version: the tuning grid can be switched between 9kHz and 10kHz by pressing the key "TUNER" for longer than 2 seconds. "Grid 9" or "Grid10" will be shown accordingly.  
Grid 9kHz is in FM 50kHz, Grid 10kHz is in FM 100kHz  
Europe version: the LW can be switched On and Off by pressing the key "TUNER" for longer than 2 seconds. LW OFF or LW ON will be shown accordingly.

Key Test

Key	Number	Key	Number	Key	Number
Cinema	1	Sens	7	Loudness	13
Surr. on/off	2	News T/A	8	Bass	14
Surr. Mode	3	Prev.Exit	9	Treble	15
Virt. Mode	4	Setup Menu	--		
Tuner	5	Next	11		
Radio Text	6	Enter/OK	12		

Table 1

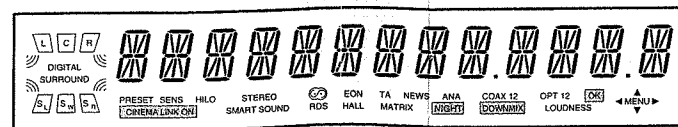


Figure 1

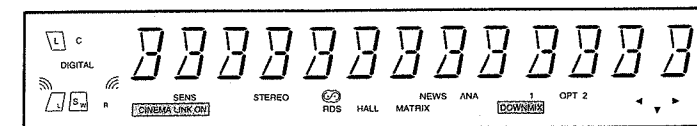


Figure 2

FR965/00mdi 17-04-00

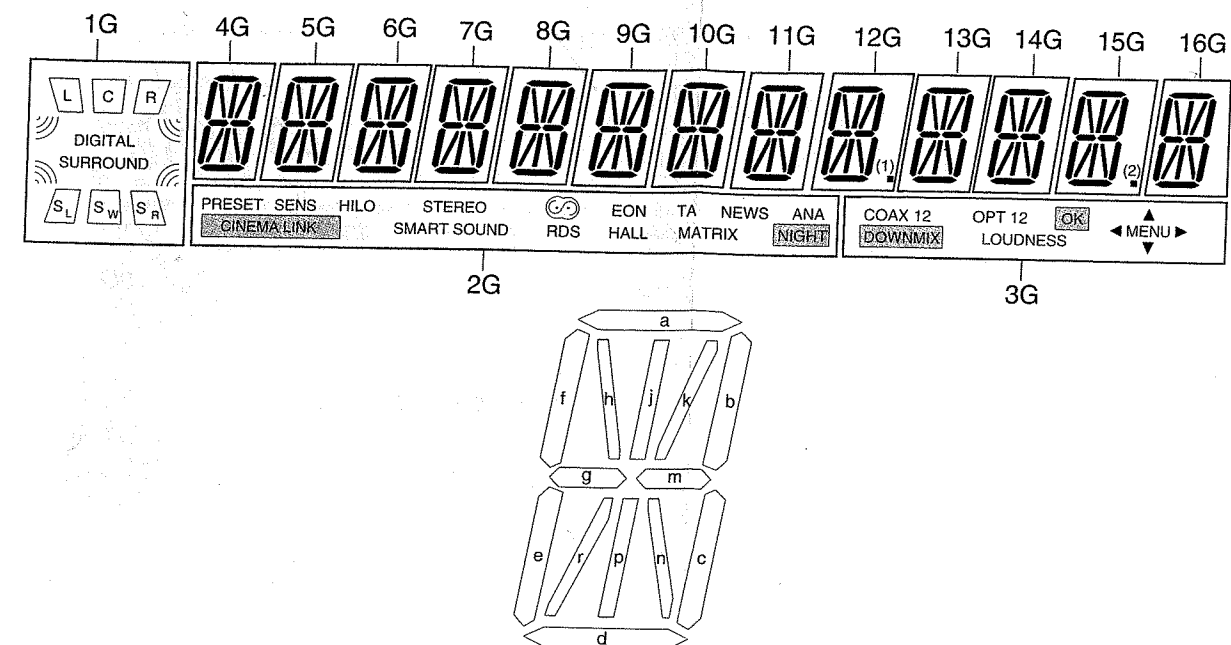
TEST	Activated with	ACTION
EEPROM	PREV Button	A test pattern will be sent to the Eeprom. "PASS" is displayed if the µProcessor read back the test pattern correctly, otherwise "ERR" will be displayed.
EEPROM FORMAT	PREV Button to exit	
	OK Button	Display shows "NEW" for 1 second. <b>Caution!</b> All presets from the customer will be Lost
















Default Data

Source =Tuner---Mode=stereo---Volume=10  
Bass=0---Treble=0---Loudness=Off  
#Effects: 3D Surr=100  
#Volume balance:  
Vol Front-L=0---Vol Front-R=0---Vol Center=0  
Vol Rear-L=0---Vol Rear-R=0---Vol Subwoofer=0  
#Speaker setup:  
Subwoofer Present=Yes---Center=Yes---Rear=Yes  
#Speaker Sizes:  
Front Size=Large--- Center Size=Large---Rear Size=Large  
#Speaker Distance:  
Dist L/R=3meter---Dist Center=3meter---Dist Rear=3meter

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FTD Display pin connections.....	6-2
Headphone & Led board layout .....	6-3
Circuit diagram .....	6-4
Component layout .....	6-5
Partslist .....	6-6



	1G	2G	3G	4G~11G	12G	13G ,14G	15G	16G
P1		MATRIX		a	a	a	a	a
P2			COAX	j p	j p	j p	j p	j p
P3	C	ANA	1 <sub>(coax)</sub>	h	h	h	h	h
P4	 (C)	LO	2 <sub>(coax)</sub>	k	k	k	k	k
P5	 (S <sub>L</sub> )		OPT	b	b	b	b	b
P6	 (S <sub>R</sub> )	EON	1 <sub>(opt)</sub>	f	f	f	f	f
P7	 S <sub>w</sub>	HALL	2 <sub>(opt)</sub>	m	m	m	m	m
P8	S (L)	HI	LOUDNESS	g	g	g	g	g
P9	L	NEWS	▼	c	c	c	c	c
P10	S (R)	PRESET	MENU	e	e	e	e	e
P11	R		▶	r	r	r	r	r
P12	 	SMART SOUND		n	n	n	n	n
P13	 	STEREO	◀	d	d	d	d	d
P14	SURROUND	TA	▲	-	■ (1)	-	■ (2)	-
P15	DIGITAL	SENS	-	-	-	-	-	-

### Pin Connection

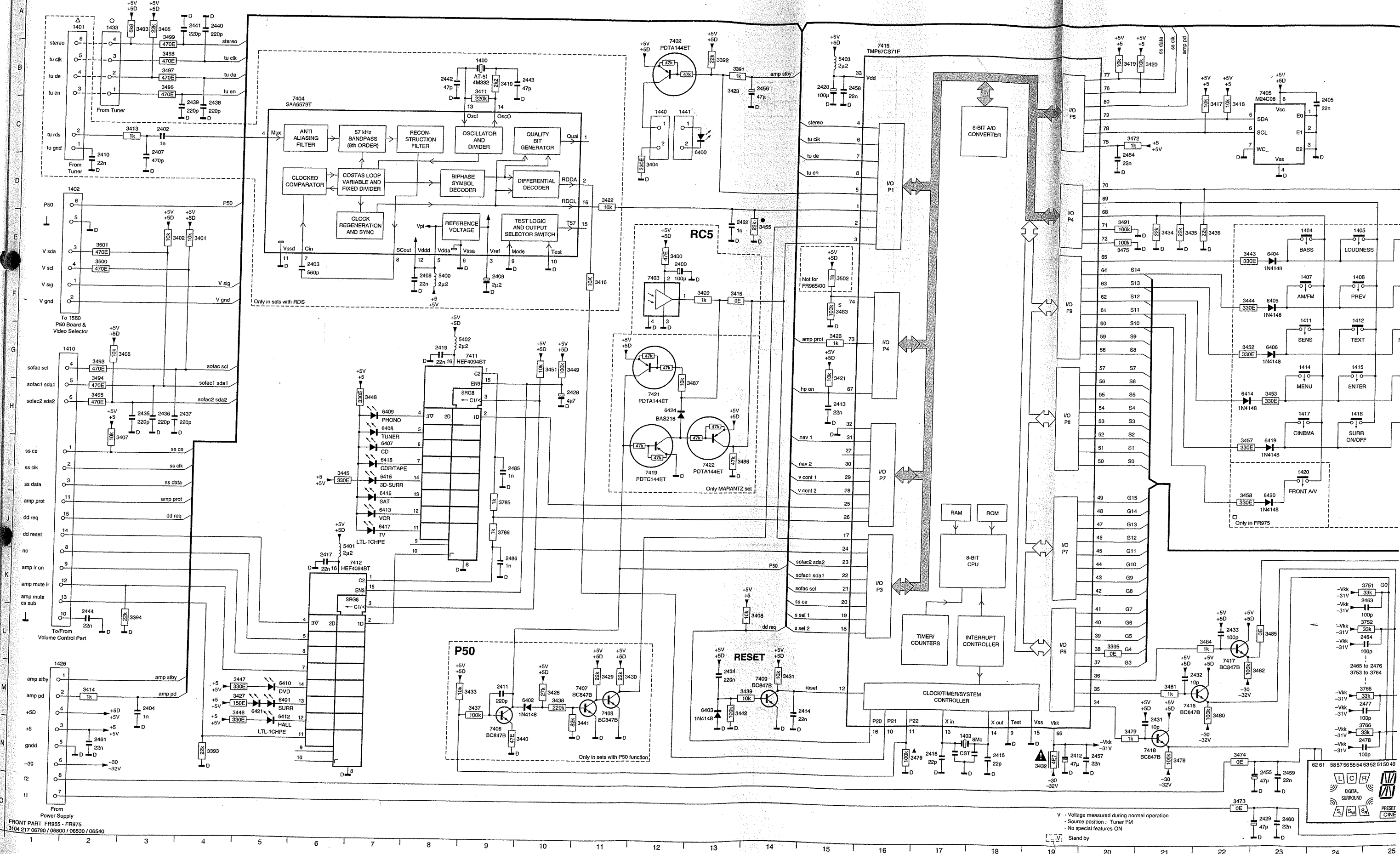
Pin numbers	5444444444433333333322222222211111111110987654321
Connection	123456789011111111NNNNNNPPPPPPPPPPPPPPNNNNNNNNNNNNFF GGGGGGGGGGGGGGGCCCCCC543210987654321CCCCCCCCCPP11

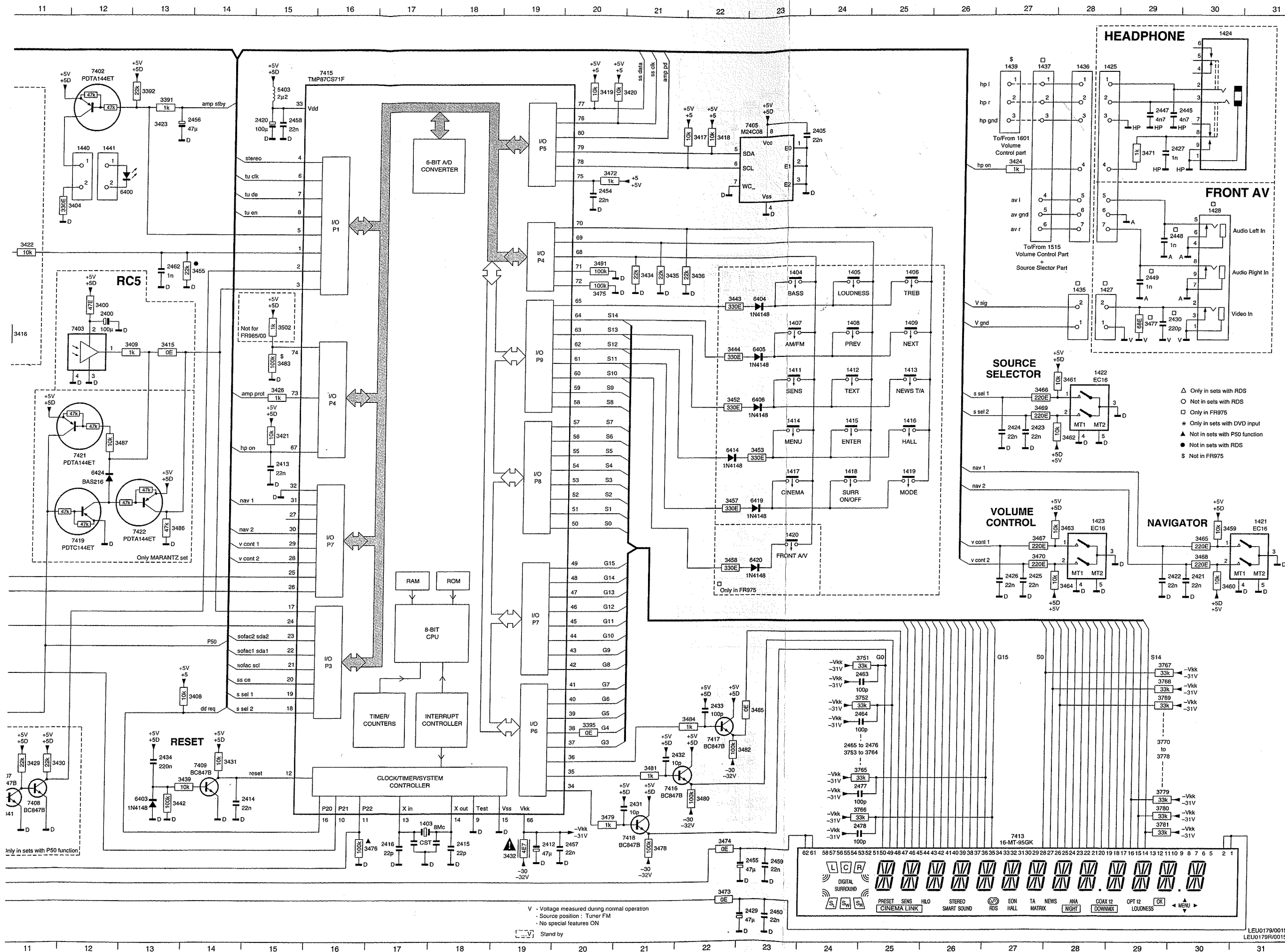
Pin numbers	666555555555
	210987654321
Connection	FFNNNNNNNNNN
	22PPCCCCCCCC

Note: F1, F2 ----- Filament  
NC ----- No connection  
NP ----- No pin  
1G ~ 16G ----- Grid



## FRONT PART FR965 - FR975



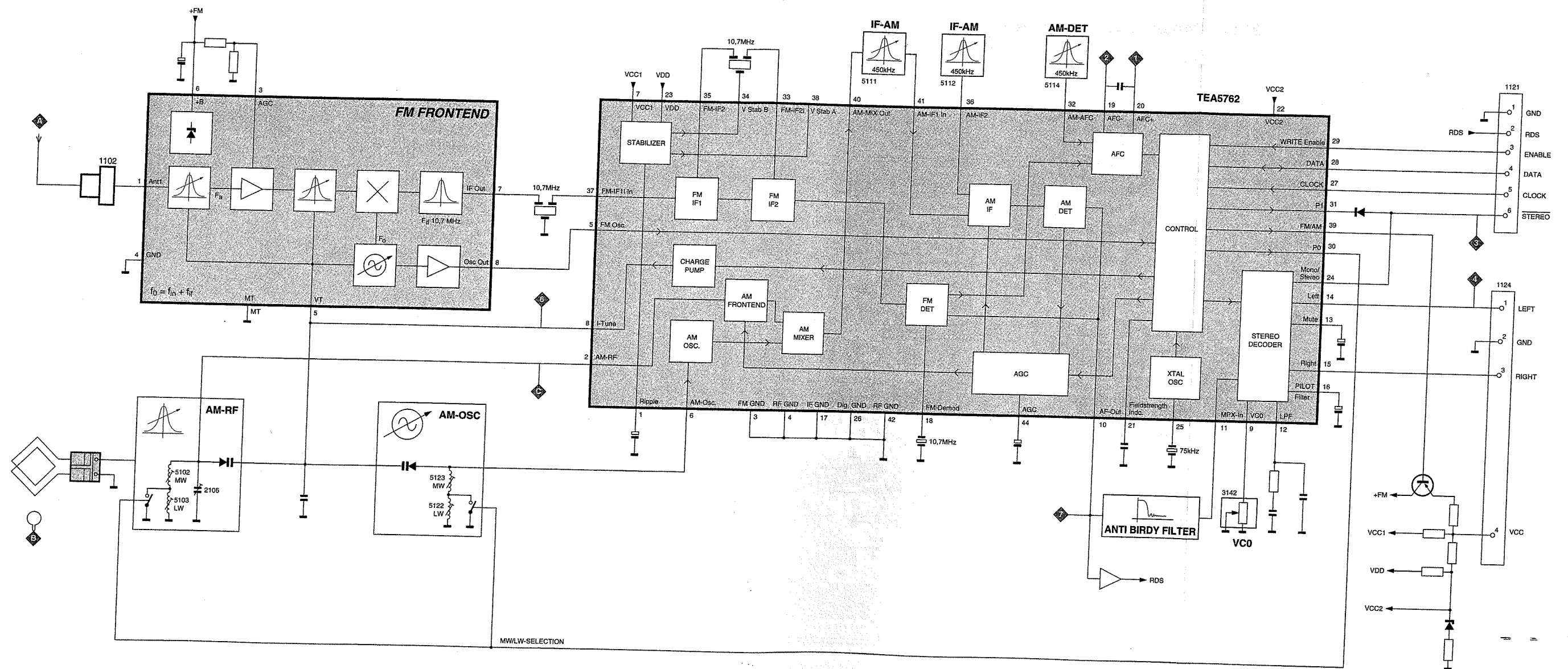


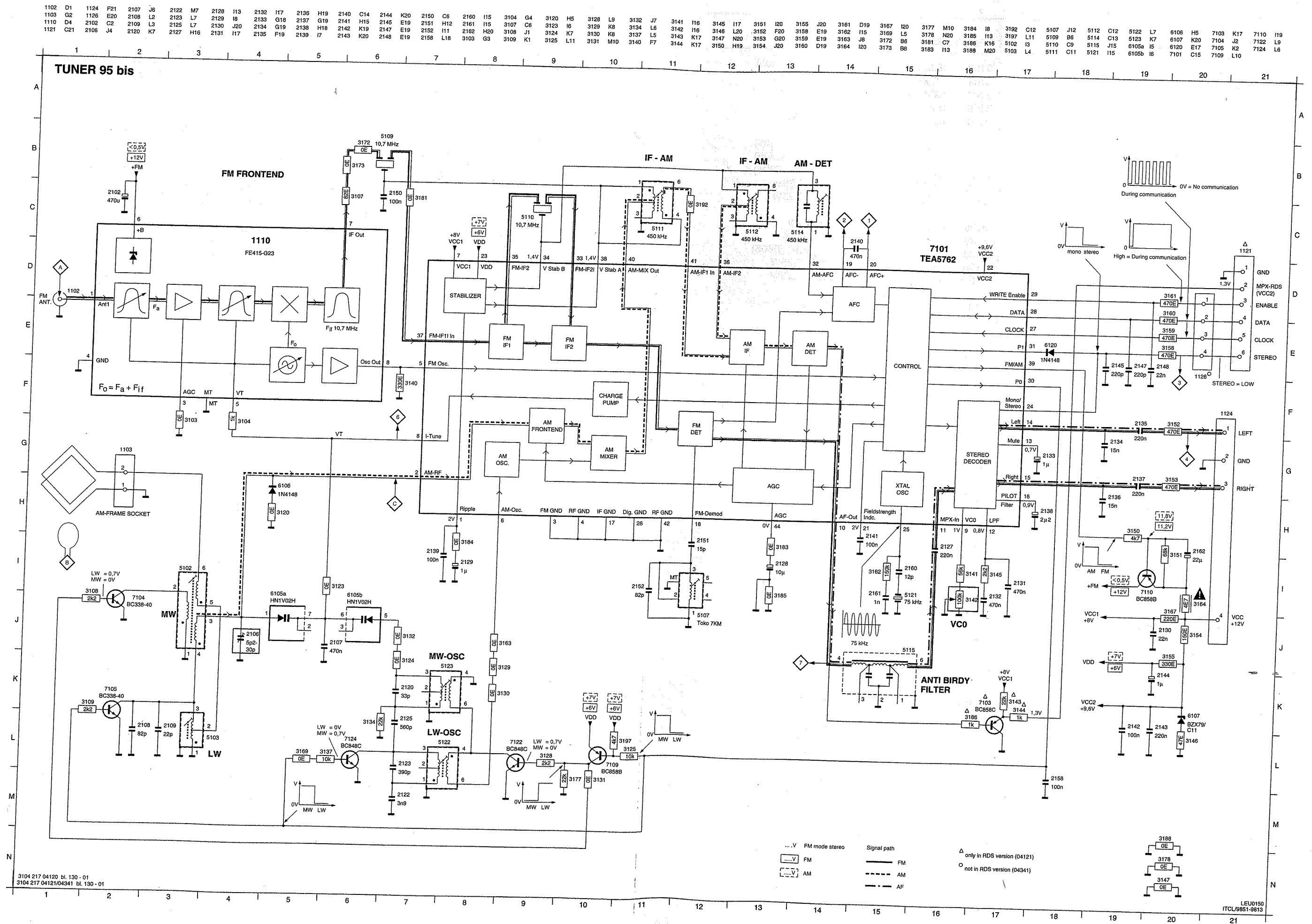
1400	B8	3418	B22	7404	C5
1401	A1	3419	B20	7405	B22
1402	D1	3420	B20	7406	N9
1403	N17	3421	G15	7407	M11
1404	E23	3422	D11	7408	M11
1405	E24	3423	B13	7409	M14
1406	E25	3424	C27	7411	G8
1407	F23	3425	G15	7412	K8
1408	F24	3427	M4	7413	N27
1409	F25	3428	M10	7415	A16
1410	G1	3429	M11	7416	M21
1411	F23	3430	M11	7417	L22
1412	F24	3431	M14	7418	N21
1413	F25	3432	N19	7419	H12
1414	G23	3433	M9	7421	H12
1415	G24	3434	E21	7422	H13
1416	G25	3435	E21		
1417	H23	3436	E22		
1418	H24	3437	M9		
1419	H25	3438	M10		
1420	I23	3439	M13		
1421	I31	3440	N10		
1422	F28	3441	N11		
1423	I28	3442	M13		
1424	A30	3443	E22		
1425	A28	3444	F22		
1426	M1	3445	I6		
1427	E28	3446	M4		
1428	D30	3447	M4		
1433	A2	3448	H7		
1435	E28	3449	G10		
1436	A28	3451	G10		
1437	A27	3452	G22		
1439	A27	3453	H23		
1440	C12	3455	E14		
1441	C12	3457	H22		
2400	E12	3458	E22		
2402	C3	3459	I30		
2403	E6	3460	J30		
2404	M3	3461	F28		
2405	B24	3462	G28		
2407	D3	3463	I28		
2408	F6	3464	J28		
2409	F9	3465	I30		
2410	D2	3466	G27		
2411	M9	3467	I27		
2412	N19	3468	I30		
2413	H15	3469	G27		
2414	M14	3470	I27		
2415	N18	3471	C29		
2416	N17	3472	C20		
2417	K6	3473	O22		
2419	G8	3474	N22		
2420	B15	3475	E20		
2421	J30	3476	N16		
2422	J29	3477	F29		
2423	G27	3478	N21		
2424	G27	3479	N20		
2425	J27	3480	M22		
2426	J27	3481	M21		
2427	C29	3482	L23		
2428	H10	3483	F15		
2429	O23	3484	L22		
2430	E29	3485	L23		
2431	M21	3486	I13		
2432	M21	3487	G12		
2433	L22	3491	E20		
2434	M13	3493	G2		
2435	H3	3494	H2		
2436	H3	3495	H2		
2437	H3	3496	B3		
2438	C4	3497	B3		
2439	C3	3498	B3		
2440	A4	3499	A3		
2441	A3	3500	E2		
2442	B8	3501	E2		
2443	B9	3502	F15		
2444	L2	3751	K24		
2445	B29	3752	L24		
2447	B29	3753	M24		
2448	D29	3764	M25		
2449	E29	3765	M24		
2454	C20	3766	M24		
2455	N23	3767	K29		
2456	E13	3768	K29		
2457	N20	3769	L29		
2458	B15	3770	L29		
2459	N23	3771	M29		
2460	O23	3772	M29		
2461	N2	3780	M29		
2462	E13	3781	N29		
2463	K24	3785	J9		
2464	L24	3786	J9		
2465	L24	5400	F8		
2476	L25	5401	J6		
2477	M24	5402	G8		
2478	N24	5403	B15		
2485	I9	6400	C12		
2486	K9	6401	M5		
3391	B13	6402	M10		
3392	B13	6403	M13		
3393	N4	6404	E23		
3394	L3	6405	F23		
3395	L20	6406	G23		
3400	E12	6407	I7		
3401	E4	6408	H7		
3402	E3	6409	H7		
3403	A2	6410	M5		
3404	D12	6412	M5		
3405	A3	6413	J7		
3406	G2	6414	H22		
3407	I2	6415	I7		
3408	L14	6416	I7		
3409	F12	6417	J7		
3410	B9	6418	I7		
3411	B8	6419	H23		
3413	C2	6420	I23		
3414	M2	6421	M5		
3415	F13	6424	H12		
3416	F11	7402	A12		
3417	B22	7403	F12		

# BLOCKDIAGRAM

7A-3

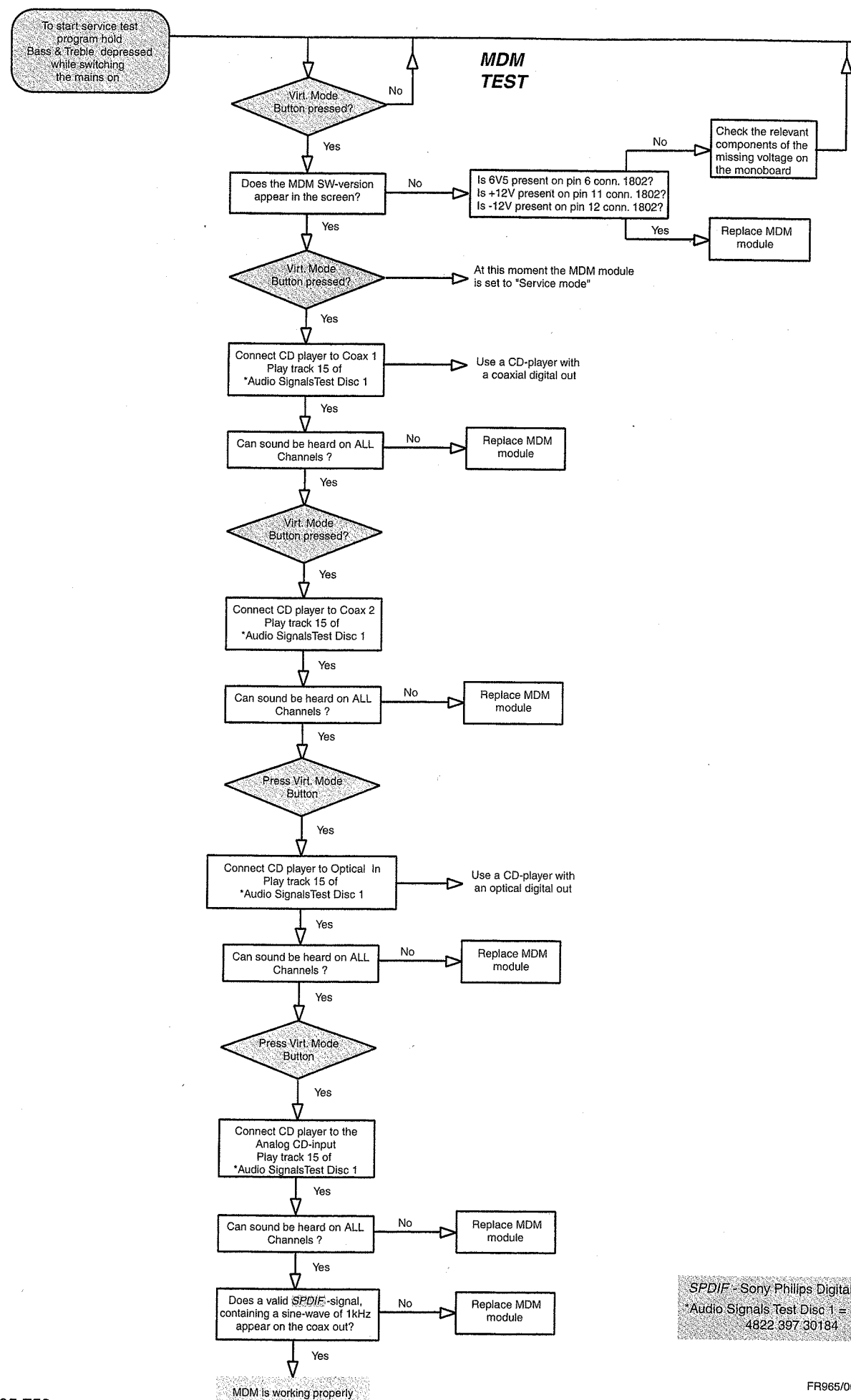
7A-3







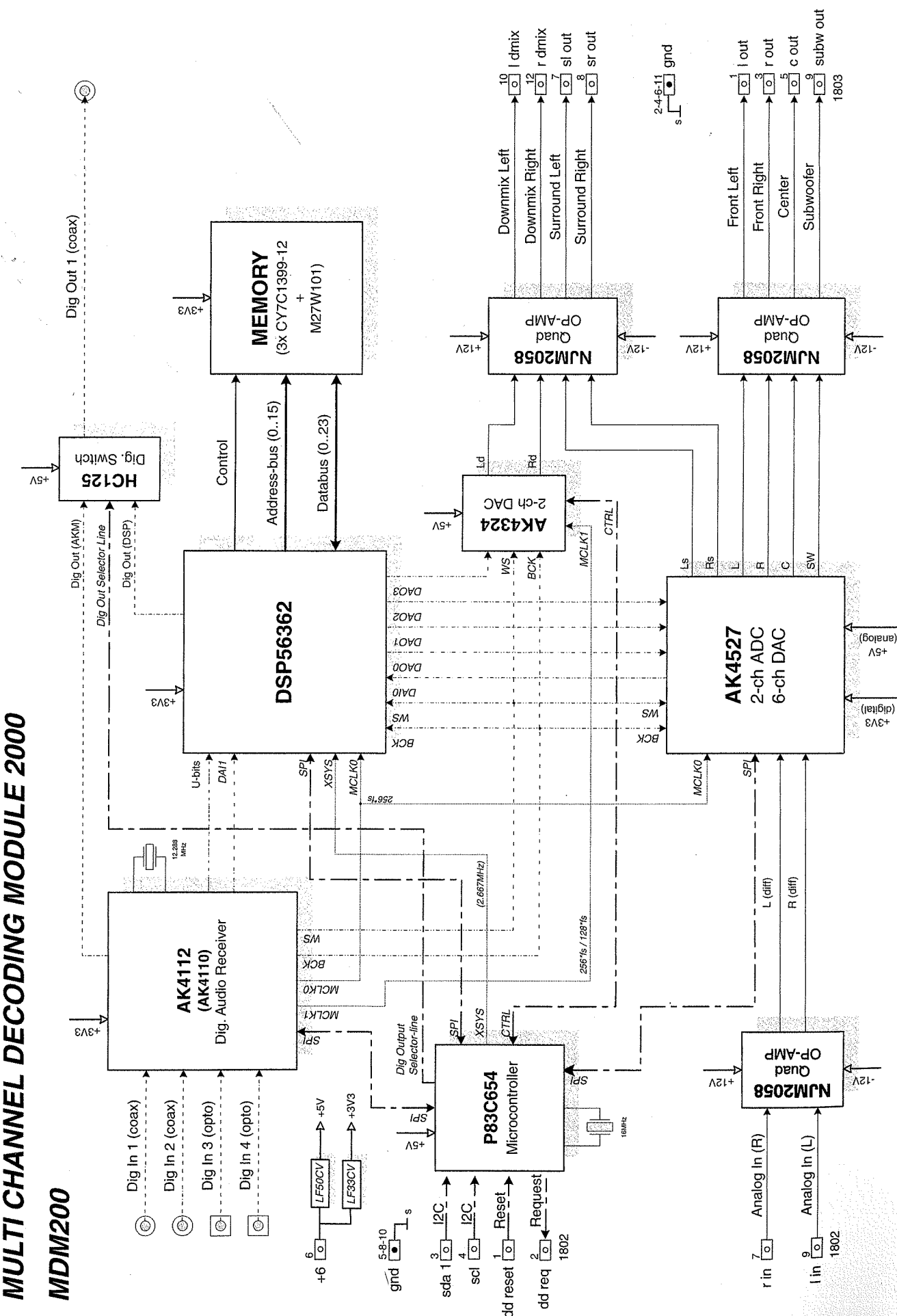
## MULTI-CHANNEL DECODING MODULE - Troubleshooting



## BLOCK-DIAGRAM

## MULTI CHANNEL DECODING MODULE 2000

## MDM200

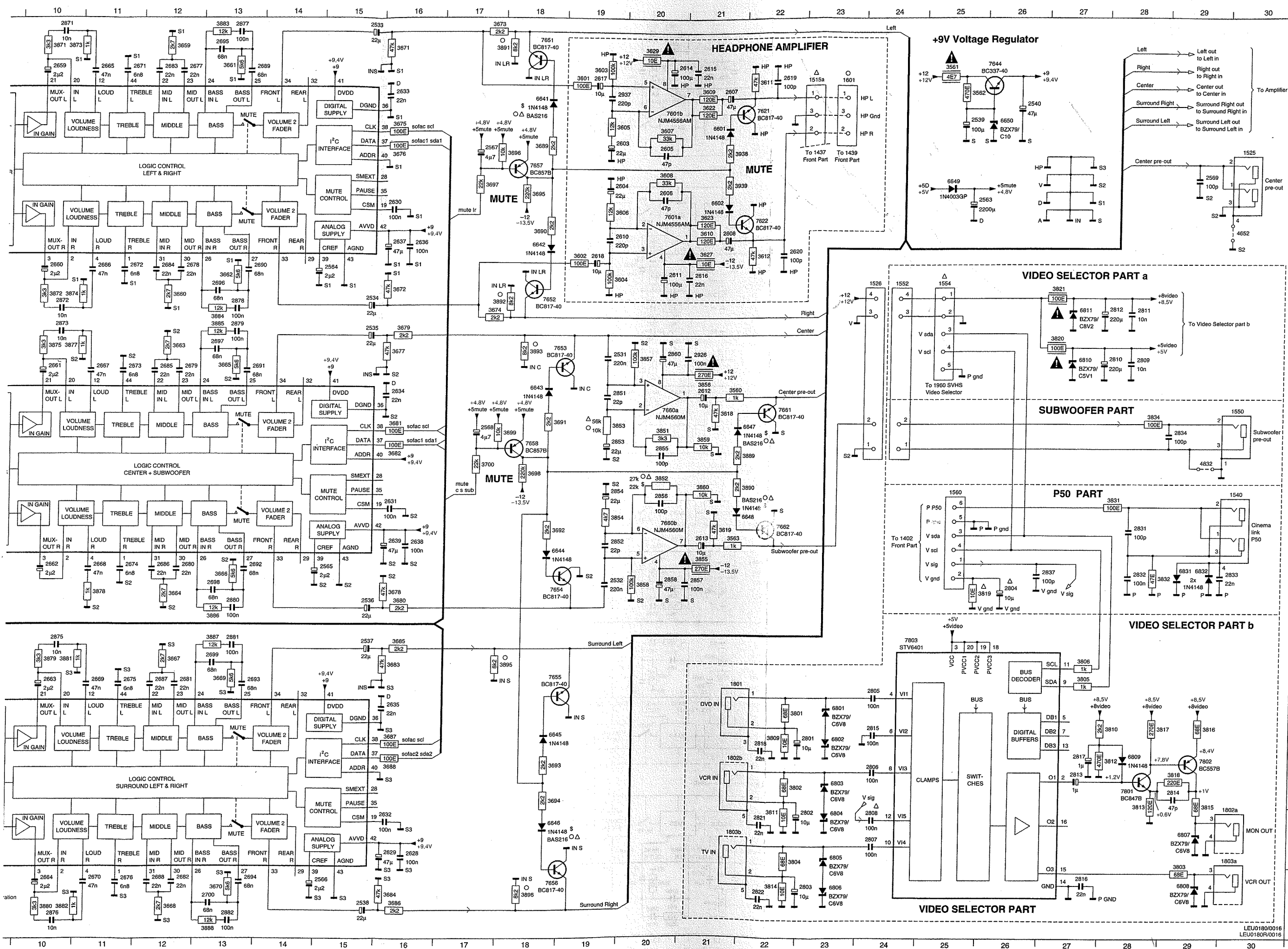


SOURCE SELECTOR PART FR965 - FR975  
3104 217 06420 / 06430 / 06490

LEU0177R/001

1511	A1	3557	J16
1512	B1	3556	J6
1513	E1	3557	N6
1514	H1	3561	M6
1515b	K1	3572	N2
1516	L1	3573	M2
2508	B15	3574	M2
2509	F15	3575	M3
2510	L14	3576	N3
2511	A3	3577	J5
2512	B3	3578	M5
2513	C3	3579	J5
2514	C3	3580	L5
2515	D3	3581	J6
2516	E3	3582	L6
2517	F3	3583	J7
2518	F3	3584	M7
2519	G3	3585	J8
2520	G3	3586	M8
2521	H3	3587	D18
2522	I3	3588	E18
2523	K3	3589	D18
2524	L3	3590	F18
2525	N3	3591	L15
2526	O3	3592	N15
2527	K16	3593	L15
2528	N16	3594	M15
2529	K16	3595	L16
2530	N16	3596	L16
2541	B14	3613	K14
2542	F14	3614	N14
2543	C15	3615	K16
2544	K15	3616	M16
2545	C16	3630	E12
2546	E16	3631	E12
2549	C15	3632	E12
2550	E15	3633	L12
2551	B16	3634	L12
2552	F16	3635	L13
2553	B16	3636	B14
2554	F16	3637	F14
2555	D6	3980	A2
2556	G6	3951	B2
2557	D6	4501	E2
2558	E6	4502	H2
2559	D9	4503	J2
2561	I6	4504	O2
2562	N6	4555	C17
2570	N14	4566	E17
2571	M3	6501	D10
2572	M3	7501	A10
2573	M4	7503a	C16
2574	M4	7503b	E16
2575	K5	7504a	K16
2576	L5	7504b	M16
2577	K5	7571a	M6
2578	L5	7571b	J6
2579	K6	7572	J10
2580	L6		
2581	J7		
2582	M7		
2583	J8		
2584	M8		
2585	J5		
2586	M5		
2589	L15		
2594	M15		
2595	L16		
2596	M16		
2599	K15		
2600	M15		
2622	D12		
2623	D13		
2624	M12		
2625	M12		
2626	M13		
2627	D12		
2632	J3		
2633	J3		
3513	B3		
3515	B2		
3516	C2		
3517	D2		
3518	D2		
3519	D3		
3520	E3		
3521	E2		
3522	F2		
3523	F3		
3524	F3		
3525	F2		
3526	G2		
3527	G3		
3528	H3		
3529	H2		
3530	I2		
3531	I2		
3532	J2		
3533	J3		
3534	J3		
3535	K2		
3536	L2		
3537	N2		
3538	N2		
3539	N4		
3540	O4		
3541	C14		
3542	C15		
3544	E15		
3545	C16		
3546	E16		
3549	K3		
3550	L3		
3551	B16		
3552	D16		
3554	E5		
3555	D9		
3556	N15		

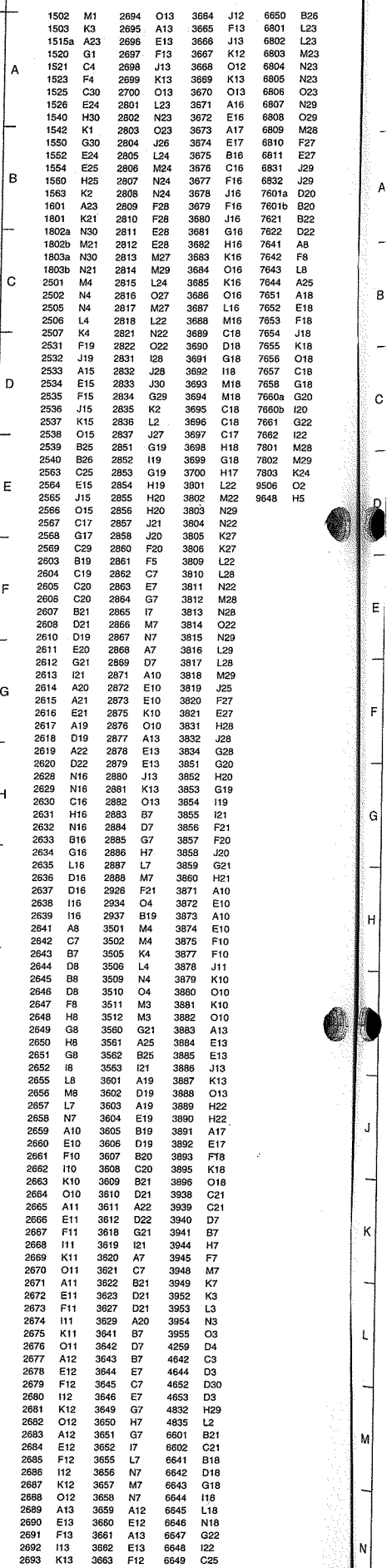


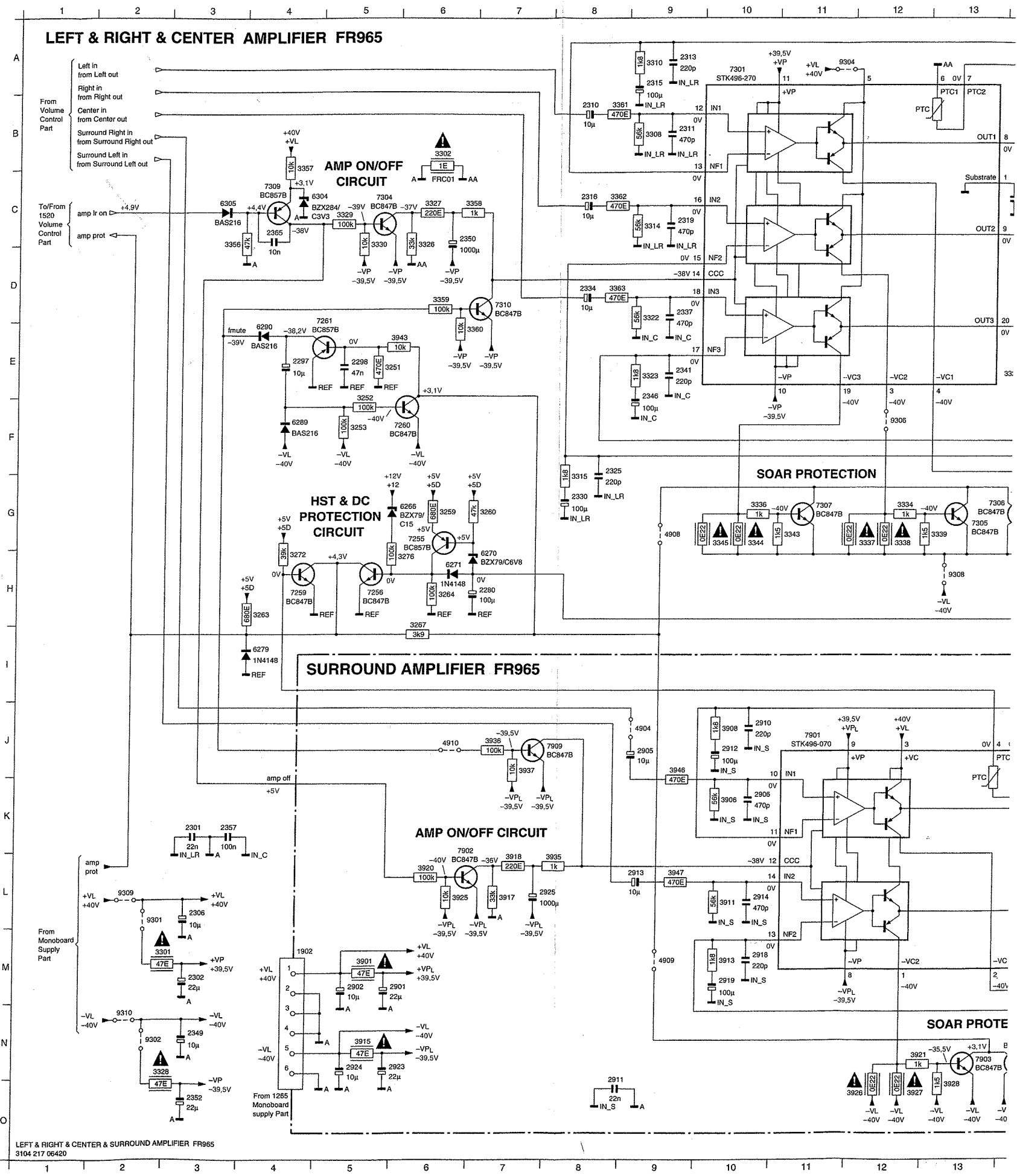
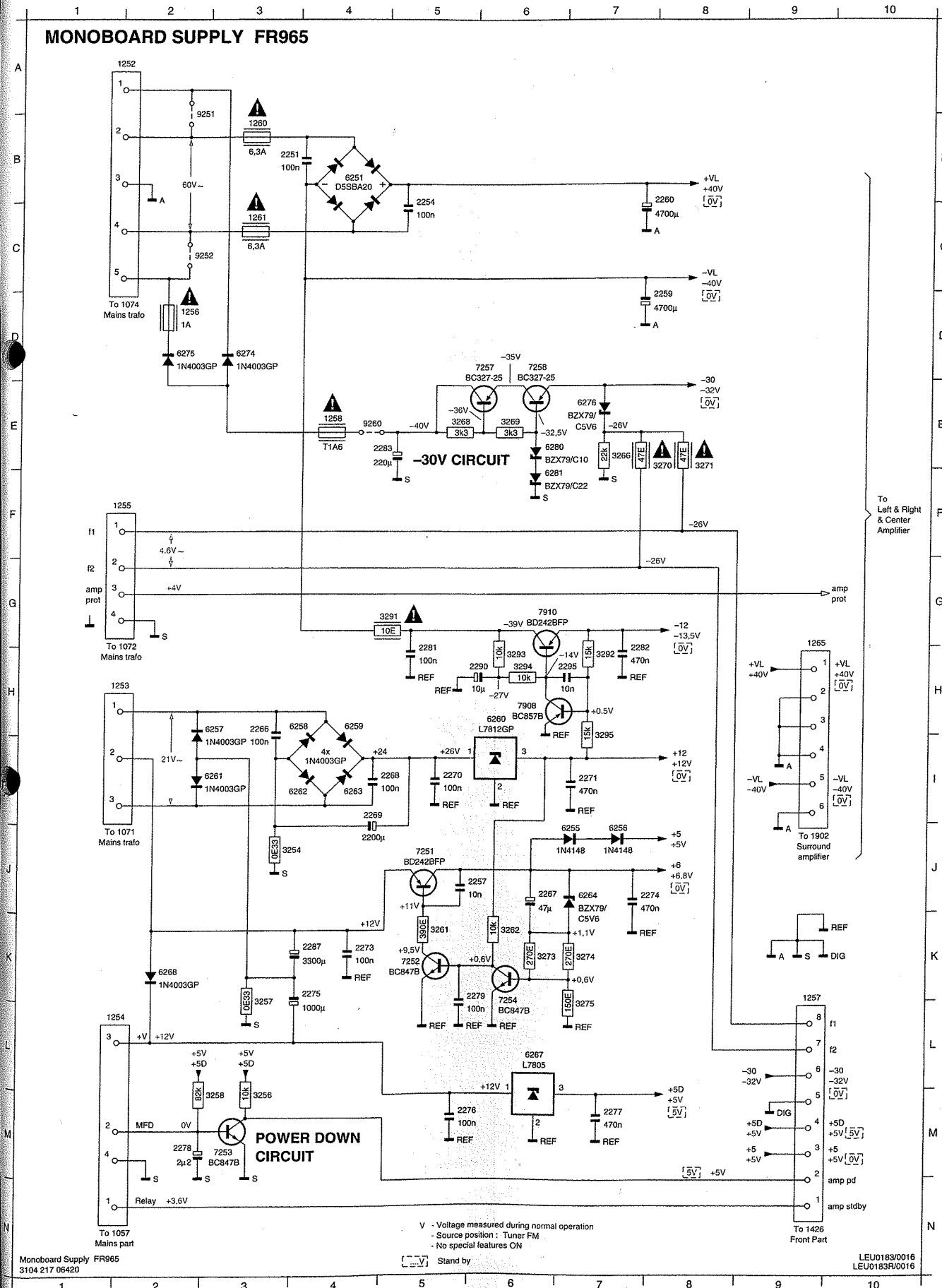


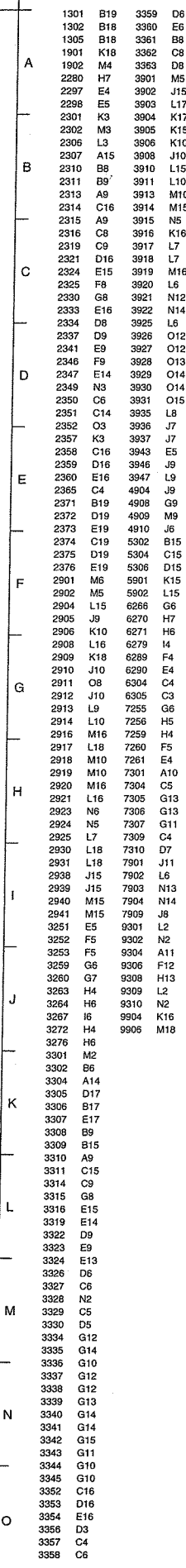
1502	M1	2694	O13	3664	J12	6650	B26
1503	K3	2695	A13	3665	F13	6801	L23
1515a	A23	2696	E13	3666	J13	6802	L23
1520	G1	2697	F13	3667	K12	6803	M23
1521	C4	2698	J13	3668	O12	6804	N23
1523	F4	2699	K13	3669	K13	6805	N23
1525	C30	2700	O13	3670	O13	6806	O23
1526	E24	2801	L23	3671	A16	6807	N29
1540	H30	2802	N23	3672	E16	6808	O29
1542	K1	2803	O23	3673	A17	6809	M28
1550	G30	2804	J26	3674	E17	6810	F27
1552	E24	2805	L24	3675	B16	6811	E27
1554	E25	2806	M24	3676	C16	6812	J29
1560	H25	2807	N24	3677	F16	6813	J29
1563	K2	2808	N24	3678	J16	6814	D20
1601	A23	2809	F28	3679	F16	6815	B20
1601	K21	2810	F28	3680	J16	6816	S22
1602a	M21	2812	E28	3682	H16	6817	D22
1603a	N30	2813	M27	3683	K16	6818	F8
1603b	N21	2814	M29	3684	O16	6819	L8
2501	M4	2815	L24	3685	K16	6820	A25
2502	N4	2816	O27	3686	O16	6821	A18
2505	N4	2817	M27	3687	L16	6822	E18
2506	L4	2818	L22	3688	M16	6823	F18
2507	K4	2821	N22	3689	C18	6824	J18
2531	F19	2822	C22	3690	O18	6825	K18
2532	J19	2831	I28	3691	G18	6826	C18
2533	A15	2832	J28	3692	I18	6827	C18
2534	E15	2833	J30	3693	M18	6828	G18
2535	F15	2834	G29	3694	M18	6829	G20
2536	J15	2835	K2	3695	C18	6830	I20
2537	K15	2836	L2	3696	C18	6831	G22
2538	O15	2837	J27	3697	C17	6832	I22
2539	B25	2851	G19	3698	H18	6833	M28
2540	B26	2852	H19	3699	G18	6834	M29
2563	C25	2853	G19	3700	H17	6835	K24
2564	E15	2854	H19	3701	L22	6836	O2
2565	J15	2855	H20	3702	M22	6837	H5
2566	O15	2856	H20	3703	N29		
2567	C17	2857	J21	3704	N22		
2568	G17	2858	J20	3705	K27		
2569	C29	2860	F20	3706	K27		
2603	B19	2861	F5	3707	L22		
2604	C19	2862	C7	3710	L28		
2605	C20	2863	C7	3711	N22		
2606	C20	2864	G7	3712	M28		
2607	B21	2865	I7	3713	N28		
2608	D21	2866	M7	3714	O22		
2610	D19	2867	N7	3715	N29		
2611	E20	2868	A7	3716	L29		
2612	G21	2869	D7	3717	L28		
2613	I21	2871	A10	3718	M29		
2614	A20	2872	E10	3719	J25		
2615	A21	2873	E10	3720	F27		
2616	E21	2874	E10	3721	F27		
2617	A19	2876	O10	3722	H28		
2618	D19	2877	A13	3723	J28		
2619	A22	2878	E13	3724	G28		
2620	D22	2879	E13	3725	G20		
2628	N16	2880	J13	3726	H20		
2629	N16	2881	K13	3727	G19		
2630	C16	2882	O13	3728	I19		
2631	H16	2883	B7	3729	I21		
2632	N16	2884	D7	3730	F21		
2633	B16	2885	G7	3731	F20		
2634	G16	2886	H7	3732	J20		
2635	L16	2887	L7	3733	G21		
2636	D16	2888	M7	3734	H21		
2637	D16	2889	F21	3735	A10		
2638	H16	2890	O4	3736	E10		
2639	H16	2891	B19	3737	A10		
2641	A8	3501	M4	3738	E10		
2642	C7	3502	M4	3739	F10		
2643	B7	3503	K4	3740	F10		
2644	D8	3504	L4	3741	J11		
2645	B8	3505	N4	3742	K10		
2646	D8	3510	O4	3743	O10		
2647	F8	3511	M3	3744	K10		
2648	H8	3512	M3	3745	O10		
2649	G8	3560	G21	3746	A13		
2650	H8	3561	A25	3747	E13		
2651	G8	3562	B25	3748	E13		
2652	I8	3563	I21	3749	J13		
2653	L8	3601	A19	3750	K13		
2654	M8	3602	D19	3751	O13		
2655	N7	3603	A19	3752	H22		
2656	N7	3604	E19	3753	H22		
2657	A10	3605	B19	3754	A17		
2658	E10	3606	D19	3755	E17		
2659	F10	3607	B20	3756	F18		
2660	I10	3608	C20	3757	K18		
2661	K10	3609	B21	3758	O18		
2662	O10	3610	D21	3759	C21		
2663	O10	3611	A22	3760	C21		
2664	E11	3612	O22	3761	D7		
2665	F11	3613	G21	3762	H7		
2666	I11	3614	I21	3763	M7		
2667	K11	3615	K21	3764	F7		
2668	O11	3616	C7	3765	K7		
2669	E11	3617	D21	3766	K7		
2670	F11	3618	D21	3767	L3		
2671	H11	3619	A20	3768	M3		
2672	K11	3620	B7	3769	O3		
2673	O11	3621	D7	3770	O3		
2674	E12	3644	E7	3771	D3		
2675	F12	3645	C7	3772	D30		
2676	H12	3646	E7	3773	D3		
2677	K12	3647	G7	3774	H29		
2678	O12	3650	H7	3775	L2		
2679	A12	3651	G7	3776	B21		
2680	E12	3652	I7	3777	C21		
2681	F12	3653	L7	3778	B18		
2682	H12	3654	N7	3779	D18		
2683	K12	3655	M7	3780	G18		
2684	O12	3656	N7	3781	I18		
2685	A13	3657	A12	3782	L18		
2686	E13	3658	E12	3783	N18		
2687	F13	3659	A13	3784	G22		
2688	H13	3660	E13	3785	I22		
2689	K13	3661	F12	3786	C25		

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**MONOBOARD SUPPLY FR965**

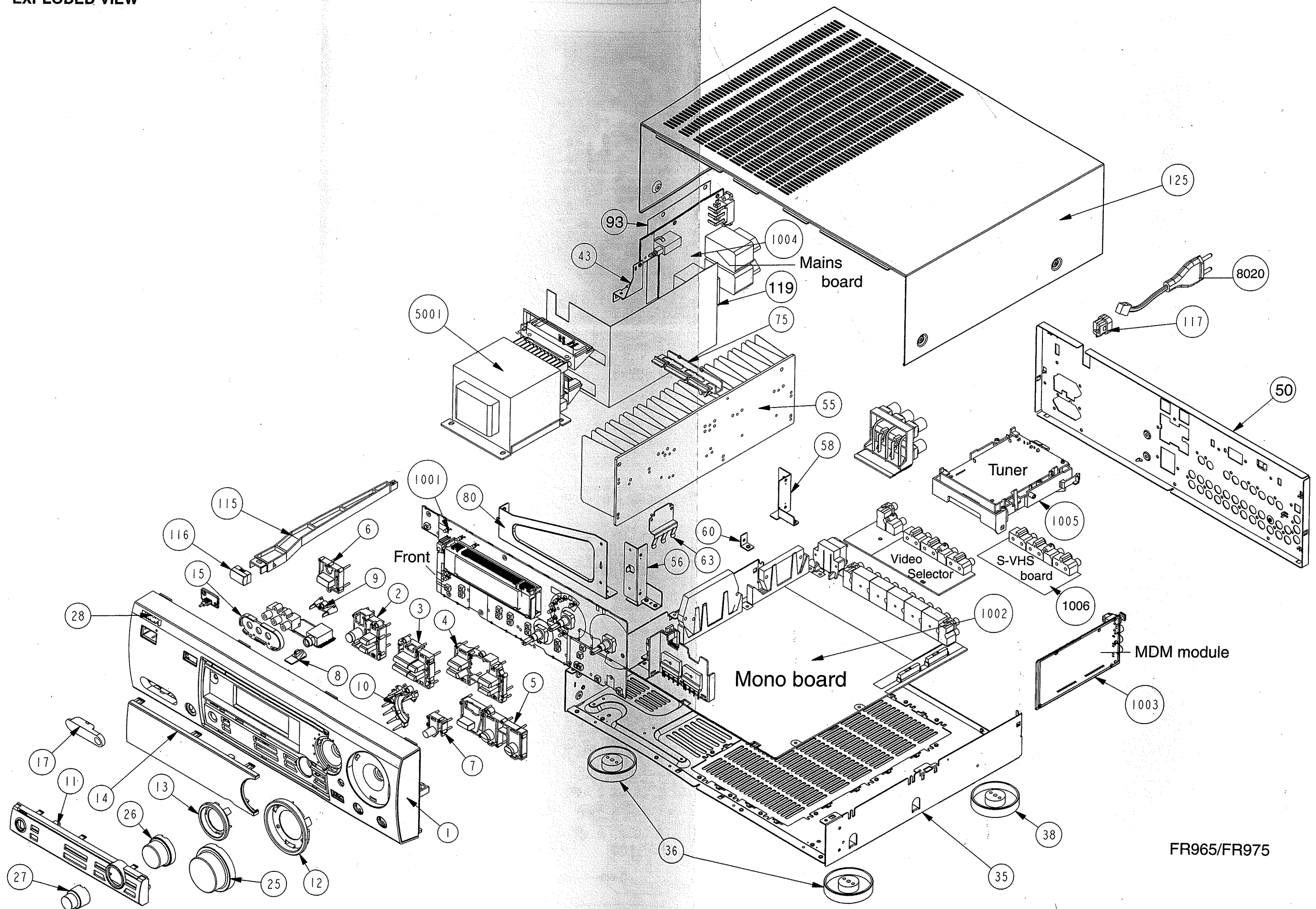




# EXPLODED VIEW

11

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FR965/FR975

SCALE 0.250